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MCNP Techniques for Modeling Sodium Iodide Spectra of Kiwi Surveys

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This work demonstrates how MCNP can be used to predict the response of mobile search and survey equipment from base principles. The instrumentation evaluated comes from the U. S. Department of Energy's Aerial Measurement Systems. Through reconstructing detector responses to various point-source measurements, detector responses to distributed sources can be estimated through superposition. Use of this methodology for currently deployed systems allows predictive determinations of activity levels and distributions for common configurations of interest. This work helps determine the quality and efficacy of certain surveys in fully characterizing an effected site following a radiological event of national interest.